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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,071	01/08/2004	Tadashi Narita	038788.53145US	5429

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EXAMINER	
HU, HENRY S	

ART UNIT	PAPER NUMBER
1713	

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/753,071	NARITA ET AL.	
	Examiner	Art Unit	
	Henry S. Hu	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment of January 30, 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-16 and 18-22* is/are pending in the application.

4a) Of the above claim(s) *1-3,18 and 19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-9,11-16 and 20-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-9,11-16 and 18-22* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to **Amendment** filed on January 30, 2006. **Claims 1, 4 and 11 were amended; Claims 10 and 17 were cancelled, while new Claims 21-22 were added.** To be more specific, three parent **Claims 1, 4 and 11** were amended only to clarify the factor of $\mathbf{R^1}$ as either a straight-chain alkylene group or a branched alkylene group as suggested by the Examiner on 112-2nd rejection; while dependent **Claims 10 and 17** were cancelled and then were rewritten as new **Claims 21 and 22** (see page **18** bottom of Remarks). The Applicants allege that support for both amendment and addition on above claims can be found on page **18** of Remarks, particularly on paragraphs **55-56** of specification.

In a close examination, such a process in each of currently amended parent **Claim 4 and Claim 11** still carries "**exactly and/or fundamentally the same" scope of original limitation** from Claim 4 and Claim 11 since claim amendment is only cosmetic so as to be in a clear form.

2. With respect to argument on the issue of improper restriction particularly on Group I (see page **18** of Remarks), no change is found by the Examiner with following: Group I (Claims 1-3) is drawn to **an organic fluorinated compound** having a moiety of formula 1 and is related to be umpolymerizable compounds, while Group II (now Claims 4-17 and 20-22) is drawn to **a fluorinated monomer** and its **polymers** as well as polymer's application in **a resist composition**. Attention is directed to **the fact** that both Claim 1 and Claim 4 are in

independent form. Even fluorinated formula (1) is included in both Group I and Group II, the chemistry, processability and its application will be mainly dependent on the issue of polymerizablity. The requirement is deemed proper and is again therefore made **FINAL**. The Examiner suggests adding the word of "unpolymerizable" in Group I to be totally distinguished from Group II in the wording.

Applicants have also corrected all the informalities as pointed out in specification objection. In view of above amendment, the Examiner thereby withdraws specification objection, claim objection and 112-2nd rejection. **Claims 1-9, 11-16 and 18-22 are pending now,** while the non-elected **Claims 1-3 and 18-19** are withdrawn from consideration. An action follows.

Response to Argument

3. In view of the Applicants' argument on pages **19-20** of Remarks with no scope of claim limitation being changed, all rejections are sustained with some modification based on the fact that dependent Claims 10 and 17 were cancelled and then were rewritten to become new Claims 21 and 22.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. *The limitation of parent* ***Claim 4*** *relates to* ***a fluorine-containing polymerizable monomer comprising a substituent represented by the formula 1****, where* R^1 ***is*** *(a) a straight-chain alkylene group or a branched alkylene group, (b) a cyclic structure containing an aromatic ring group or aliphatic cyclic group, or (c) a substituent containing an aromatic ring group and an aliphatic cyclic group, and* R^1 *optionally contains fluorine, another halogen, CN, oxygen, nitrogen, silicon, or alcohol,* ***and*** R^2 ***is*** *a hydrogen atom, a straight-chain or branched alkyl group, an aromatic group, or a hydrocarbon group optionally containing an aliphatic cyclic group, and* R^2 *optionally contains fluorine, oxygen, nitrogen, carbonyl bond, or alcohol,*

and a plural number of R^2 having different structures are optionally contained in the molecule. Other parent ***Claim 11*** *relates to* ***polymers*** *comprising units from monomers of Claim 4.*

See other limitations of dependent ***Claims 5-9, 12-16 and 20-22.***

6. Claims 4-5 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmori et al. (US 4,644,043 and its equivalent EP 180,913 A1) in view of Mowrer et al. (US 6,013,752) for the reasons set forth in paragraphs **7-8** of office action dated 7-28-2005 as well as the discussion below.

7. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (WO 88/09799) in view of Mowrer et al. (US 6,013,752) for the reasons set forth in paragraph **9** of office action dated 7-28-2005 as well as the discussion below.

8. Claims 6-9 and 13-16 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmori et al. (US 4,644,043 and its equivalent EP 180,913 A1) in view of Mowrer et al. (US 6,013,752) as applied to Claims 4-5 and 11-12, and further in view of Komoriya et al. (USPG-PUB 2003/0232940 A1) for the reasons set forth in paragraphs **10-11** of office action dated 7-28-2005 as well as the discussion below.

9. Claims 5-9 and 12-16 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (WO 88/09799) in view of Mowrer et al. (US 6,013,752) as applied to Claims 4 and 11, and further in view of Komoriya et al. (USPG-PUB 2003/0232940

A1) for the reasons set forth in paragraph **12** of office action dated 7-28-2005 as well as the discussion below.

10. **Applicants**: Applicants have claimed in each of two parent **Claims 4 (monomer) and 11 (polymer)** an unexpected way of obtaining **fluorine-containing monomers and/or its polymers comprising a substituent represented by the formula 1** along with a particular combination of R^1 and R^2 as specified.

All 103(a) rejections cannot stand as follows: Each of the two primary references including Ohmori and Suzuki only carries a formula of $-O-R^1-CF_2-C\underline{F}(CF_3)OR^2$, which is quite different from the claimed formula (1), $-O-R^1-CF_2-C\underline{H}(CF_3)OR^2$. Even the difference is only a hydrogen atom, **Examiner 's TOTAL rely on secondary reference Mowrer** to teach the replacement of F on $-O-R^1-CF_2-C\underline{F}(CF_3)OR^2$ with H so as to become the claimed $-O-R^1-CF_2-C\underline{H}(CF_3)OR^2$ **is improper** since a motivation to link is lacking (see page **19** bottom of Remarks). The key argument (as pointed out by the Applicants) is that **All of Mowrer's fluoroalcohols are reactive toward silicon so as to form Si-O-C bond** according to the disclosure on column 9, line 19-34 and column 16, line 30. However, Ohmori and Suzuki's formula $-O-R^1-CF_2-C\underline{F}(CF_3)OR^2$ has the oxygen atom bound to the underlined fluorine atom is protected by the R^2 group from further reaction. In summary, Ohmori and Suzuki's $-O-R^1-CF_2-C\underline{F}(CF_3)OR^2$ is unreactive and is therefore distinguished from Mowrer's reactive fluoroalcohols.

11. **Examiner**: Each of current parent **Claims 4 and 11** is involved in making monomers and its polymer carrying **a substituent as formula (1) $-O-R^1-CF_2-CH(CF_3)OR^2$ wherein R^2 can be a hydrogen atom or a carbon moiety**. The Examiner fully understands that Mowrer's reactive fluoroalcohols having unit of $-O-R^1-CF_2-CF(CF_3)OR^2$ (**wherein R^2 is a perfluorinated carbon moiety**) are picked up for poly-condensation with –OH or –alkoxy functional group(s) on silicon compound(s) so as **to form Si-O-C bond**.

Attention is directed to **the fact** that various types of fluoroalcohols used by Mowrer are including fluorinated and protonated "isomeric" species; for instance, they are hexafluoro-isopropanol ($CF_3-CH(OH)-CF_3$), haxafluoro-2-methylisopropanol ($CF_3-C(CH_3)(OH)-CF_3$), heptafluoro-propanol ($CF_3-CF(OH)-CF_3$), perfluoro-tert-butanol ($CF_3-C(CF_3)(OH)-CF_3$). The key point is that **all of them are disclosed to be functionally equivalent and interchangeable** in fulfilling poly-condensation reaction with silicon compound. The difference among –CH-, -C(CH_3)-. – CF- and - C(CF_3)- is shown NOT to be a matter in this regard.

12. In order to further support Examiner's finding, **USPG-PUB 2003/0232940 A1 to Komoriya** et al. (used in 103 rejection as tertiary reference to teach resist composition) has **explicitly** shown that pendent groups with $-C(CF_3)_2-(OH)$ and $-C(CF_3)_2-(OR)$ (wherein R is alkyl, perfluoroalkyl or acid-labile protection group) in monomers **DO NOT** change the polymerizability of monomers as well as its polymers' application (see abstract; see title for resist application; also see monomers and its polymers in Claims 1-2 and 9). In summary, the moieties of –CH-, - C(CH_3)-, – CF- and - C(CF_3)- are found to be **functionally equivalent and**

interchangeable each other from the disclosure of Mowrer. The replacement of F atom on –O-R^1-CF_2-C**F**$(CF_3)OR^2$ with H atom so as to become the claimed –O-R^1-CF_2-C**H**$(CF_3)OR^2$ is thereby made proper **since the protection or not with R^2 group is not critical**.

Present application may have presented that some **good results** as some advantages can be obtained from the use of polymers carrying the claimed formula (1), –O-R^1-CF_2-C**H**$(CF_3)OR^2$ (see paragraphs 1-4 of specification). In a close examination, it is not included at all in parent Claims 4 and 11. It is noted that **a good result may be just an "inherent" result and is not necessarily to be an unexpected result** according to MPEP. In summary, the Applicants have not yet showed **criticality** for using such a H-containing –O-R^1-CF_2-C**H**$(CF_3)OR^2$. Therefore, all previous 103(a) rejections are sustained with the same ground of rejection.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Henry S. Hu

Patent Examiner, Art Unit 1713, USPTO

March 13, 2006

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